TV

and
receiving valves
and
components.

AWV Radiotron

TV 1

Price 3/-

CONTENTS

RECEIVING VALVES:

PICTURE TUBES:

TV DEFLECTION COMPONENTS:

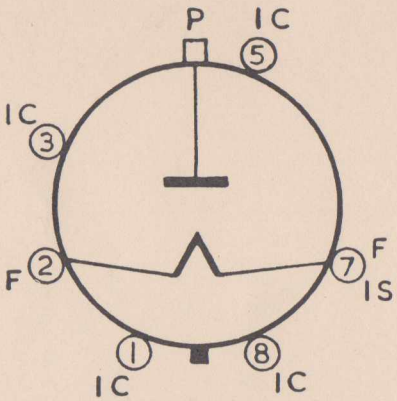
IMPORTANT NOTE:

This booklet has been prepared in loose-leaf form to allow sheets for additional valve and component types to be added as they become available. New sheets will be announced from time to time in the Amalgamated Wireless Valve Company's publication "Radiotronics" and will be available free and post free on request.

AMALGAMATED WIRELESS VALVE CO. PTY. LTD.
47 York Street, Sydney, N.S.W.

TELEVISION SERIES

1B3GT



(bottom view)

SOCKET CONNECTIONS

Pin 1—Internal Connection. Do not use.
Pin 2—Filament.
Pin 3—Internal Connection. Do not use.
Pin 5—Internal Connection. Do not use.
Pin 7—Filament and Internal Shield.
Pin 8—Internal Connection. Do not use.
Cap —Plate.

HALF-WAVE, HIGH-VOLTAGE RECTIFIER. The Radiotron 1B3GT is a vacuum type of rectifier designed for use in high-voltage low-current applications. It is particularly suitable for use in a television receiver as the E.H.T. rectifier producing the final anode voltage for the picture tube from the high-voltage pulses present in the output stage of the horizontal scanning system.

RADIOTRON 1B3GT

1B3GT HALF-WAVE HIGH-VOLTAGE RECTIFIER

ELECTRICAL DATA

Filament Voltage	1.25*	volts
Filament Current	0.2	amp

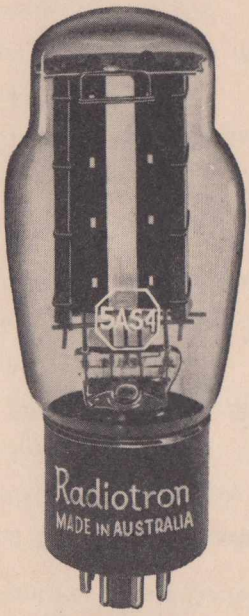
HALF-WAVE RECTIFIER

Maximum Ratings:

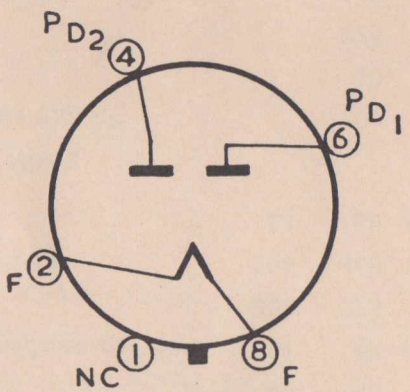
Peak Inverse Plate Voltage	30000	max.	volts
Peak Plate Current	17	max.	mA
Average Plate Current	2	max.	mA
Frequency of Supply Voltage	300	max.	Kc/s

** The filament voltage must never exceed 1.45 volts even momentarily.*

TELEVISION SERIES



5AS4



(bottom view)

SOCKET CONNECTIONS

Pin 1—No connection
Pin 4—Plate No. 2
Pin 6—Plate No. 1
Pin 8—Filament.
Pin 2—Filament

FULL-WAVE VACUUM RECTIFIER. The Radiotron 5AS4 is a full-wave vacuum rectifier of the filamentary cathode type, intended for use in power supplies of television and radio receiving equipment having high direct current requirements.

The 5AS4 has a maximum peak inverse plate voltage of 1550 volts, and a maximum peak plate current per plate of one ampere. When operated as a full-wave rectifier with an alternating plate to plate supply voltage of 600 volts r.m.s. in a circuit with capacitor input to filter, the 5AS4 can maintain a direct output of approximately 290 volts to the filter at a direct current of 300 mA. Similarly, when operated as a full-wave rectifier with an alternating plate to plate supply voltage of 900 volts r.m.s. in a circuit with capacitor input to the filter the 5AS4 will maintain a direct output of approximately 460 volts to the filter at a direct current of 275 mA.

RADIOTRON 5AS4

5AS4 FULL WAVE VACUUM RECTIFIER

ELECTRICAL DATA (tentative)

Filament Voltage	5.0	volts
Filament Current	3.0	amps

FULL-WAVE RECTIFIER

Maximum Ratings:

Peak Inverse Plate Voltage	1550	max.	volts
Steady State Peak Current per Plate	1.0	max.	amp
A.C. Plate Supply Voltage (r.m.s.) per Plate	550	max.	volts
Transient Peak Plate Current per Plate	4.6	max.	amps

Typical Operation (Capacitor-Input Filter):

A.C. Plate to Plate supply voltage (r.m.s.)*	600	900	volts
Filter Input Capacitor	40	40	μF
Total Effective Plate Supply Impedance per Plate	21	67	ohms
Output Current (direct)	300	275	mA
Output Voltage (direct at filter input)	290	460	volts
Voltage Drop across Valve	54	50	volts

Typical Operation (Choke-Input Filter):

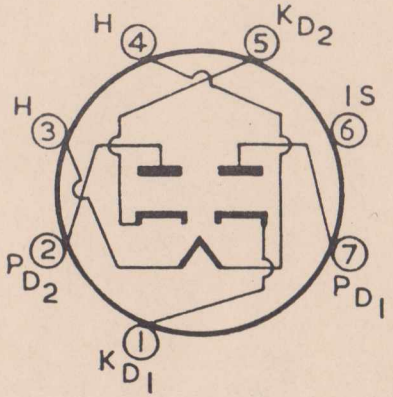
A.C. Plate to Plate supply voltage (r.m.s.)*	1100	volts
Filter Input Choke Inductance	10	H
Output Current (d.c.)	275	mA
Output Voltage (d.c., at filter input)	440	volts

* *Measured without load.*

TELEVISION SERIES

AWV

6AL5



(bottom view)

SOCKET CONNECTIONS

Pin 1—Cathode of Diode No. 1
Pin 2—Plate of Diode No. 2
Pin 3—Heater
Pin 4—Heater
Pin 5—Cathode of Diode No. 2
Pin 6—Internal Shield
Pin 7—Plate of Diode No. 1

TWIN DIODE. The Radiotron 6AL5 is a miniature twin diode which, because of its high perveance, is suitable for use as detector in circuits utilising wide band amplifiers. It is particularly useful as a ratio detector in television receivers, where its low internal resistance makes it possible to obtain increased signal voltage from a low impedance diode load. Each diode has its own plate and cathode base-pin connections and can, therefore, be used independently of the other or combined in a parallel or full wave arrangement. The resonant frequency of each unit is approximately 700 Mc/s.

6AL5 TWIN DIODE

ELECTRICAL DATA

Heater Voltage	6.3	volts
Heater Current	0.3	amp

HALF-WAVE RECTIFIER

Maximum Ratings:

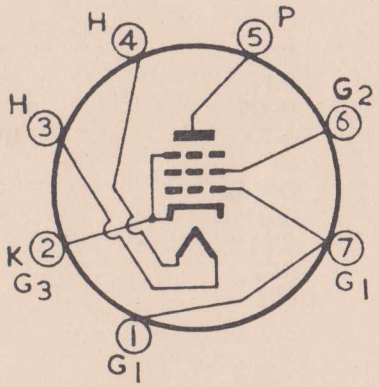
Peak Inverse Voltage	330	max.	volts
Peak Plate Current per Plate	54	max.	mA
D.C. Output Current per Plate	9	max.	mA
Peak Heater-Cathode Voltage:			
Heater negative with respect to cathode	330	max.	volts
Heater positive with respect to cathode	330	max.	volts

Typical Operation:

A.C. Plate Voltage per Plate (r.m.s.)	117	volts
Min. Total Effective Plate-Supply Impedance	300	ohms
D.C. Output Current per Plate	9	mA

TELEVISION SERIES

6AQ5



(bottom view)

SOCKET CONNECTIONS

Pin 1—Grid No. 1
Pin 2—Cathode, Grid No. 3
Pin 3—Heater
Pin 4—Heater
Pin 5—Plate
Pin 6—Grid No. 2
Pin 7—Grid No. 1

BEAM POWER AMPLIFIER. The Radiotron 6AQ5 is a miniature beam power pentode designed primarily for use as the output valve in a.c. operated receivers. Within its maximum ratings the performance of the 6AQ5 is equivalent to that of the larger type 6V6GT.

RADIOTRON 6AQ5

6AQ5 BEAM POWER PENTODE

ELECTRICAL DATA

Heater Voltage	6.3	volts
Heater Current	0.45	amp

CLASS A_1 AMPLIFIER

Maximum Ratings:

Plate Voltage	250	max.	volts
Grid No. 2 Voltage	250	max.	volts
Plate Dissipation	12	max.	watts
Grid No. 2 Input	2	max.	watts
Peak Heater-Cathode Voltage:			
Heater negative with respect to cathode	90	max.	volts
Heater positive with respect to cathode	90	max.	volts

Typical Operation:

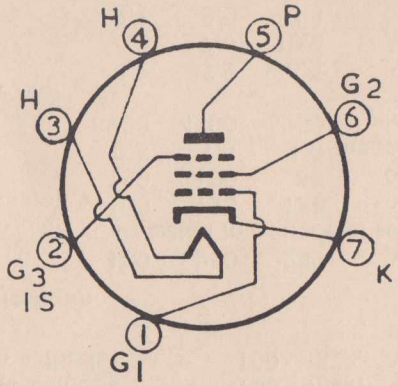
Plate Voltage	250	volts
Grid No. 2 Voltage	250	volts
Grid No. 1 Voltage	−12.5	volts
Transconductance	4100	μmhos
Plate Resistance (approx.)	52000	ohms
Plate Current (zero signal)	45	mA
Grid No. 2 Current (zero signal)	4.5	mA
Load Resistance	5000	ohms
Power Output (max. signal)	4.5	watts
Total Harmonic Distortion	8	%

Maximum Circuit Values:

Grid No. 1 Circuit Resistance:			
For fixed-bias operation	0.1	max.	megohm
For cathode-bias operation	0.5	max.	megohm

TELEVISION SERIES

6AU6



(bottom view)

SOCKET CONNECTIONS

Pin 1—Grid No. 1
Pin 2—Grid No. 3, Internal Shield
Pin 3—Heater
Pin 4—Heater
Pin 5—Plate
Pin 6—Grid No. 2
Pin 7—Cathode

SHARP CUT-OFF PENTODE. The Radiotron 6AU6 is a miniature pentode amplifier with sharp cut-off characteristics, low grid-plate capacitance and high transconductance. It is used as a radio frequency amplifier particularly in high frequency wide band applications. Because of its high transconductance and sharp cut-off the 6AU6 is useful as a limiter in F.M. equipment.

6AU6 SHARP CUT-OFF PENTODE

ELECTRICAL DATA

Heater Voltage	6.3	volts
Heater Current	0.3	amp

CLASS A_1 AMPLIFIER

Maximum Ratings:

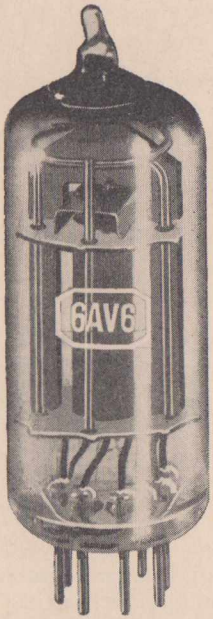
Plate Voltage	300	max.	volts
Grid No. 2 (screen) Voltage	150	max.	volts
Grid No. 2 Supply Voltage	300	max.	volts
Plate Dissipation	3	max.	watts
Grid No. 2 Input	0.65	max.	watt
Grid No. 1 (control-grid) Voltage:			
Negative bias value	50	max.	volts
Positive bias value	0	max.	volts
Peak Heater-Cathode Voltage:			
Heater negative with respect to cathode	180	max.	volts
Heater positive with respect to cathode	100	max.	volts

Typical Operation (Pentode Connection):

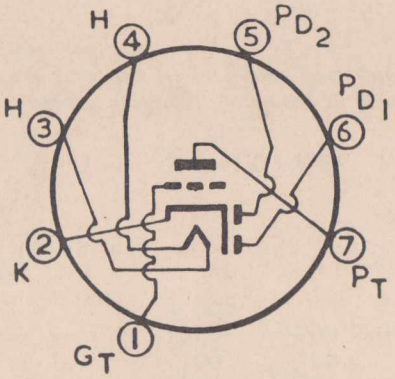
Plate Voltage	100	250	250	volts
Grid No. 3 (Suppressor)	Connected to cathode at socket			
Grid No. 2 Voltage	100	125	150	volts
Cathode Resistor	150	100	68	ohms
Plate Resistance (approx.)	0.5	1.5	1.0	megohms
Transconductance	3900	4500	5200	μmhos
Grid No. 1 Bias for Plate Current of 10 μA	−4.2	−5.5	−6.5	volts
Plate Current	5.0	7.6	10.6	mA
Grid No. 2 Current	2.1	3.0	4.3	mA

TELEVISION SERIES

AWV



6AV6



(bottom view)

SOCKET CONNECTIONS

Pin 1—Triode Grid
Pin 2—Cathode
Pin 3—Heater
Pin 4—Heater
Pin 5—Diode Plate No. 2
Pin 6—Diode Plate No. 1
Pin 7—Triode Plate

TWIN DIODE, HIGH-MU TRIODE. The Radiotron 6AV6 is a miniature valve containing two diodes and a high-mu triode in one envelope. The triode section is suitable for use in television and A-M radio receivers as an audio amplifier; and the diodes for use in television receivers for such a purpose as an A.G.C. clamp, and in A-M radio receivers as a detector and an A.V.C. voltage rectifier.

6AV6 TWIN DIODE, HIGH-MU TRIODE

ELECTRICAL DATA

Heater Voltage	6.3	volts
Heater Current	0.3	amp

TRIODE UNIT AS CLASS A_1 AMPLIFIER

Maximum Ratings:

Plate Voltage	300	max.	volts
Grid Voltage, Positive Bias Value	0	max.	volts
Plate Dissipation	0.5	max.	watt
Peak Heater-Cathode Voltage:			
Heater negative with respect to cathode	90	max.	volts
Heater positive with respect to cathode	90	max.	volts

Characteristics:

Plate Voltage	100	250	volts
Grid Voltage	−1	−2	volts
Plate Resistance	80000	62500	ohms
Amplification Factor	100	100	
Transconductance	1250	1600	μmhos
Plate Current	0.50	1.2	mA

DIODE UNITS

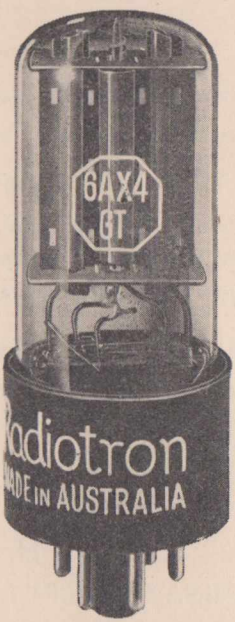
Maximum Rating:

Plate Current (each unit)	1.0	max.	mA

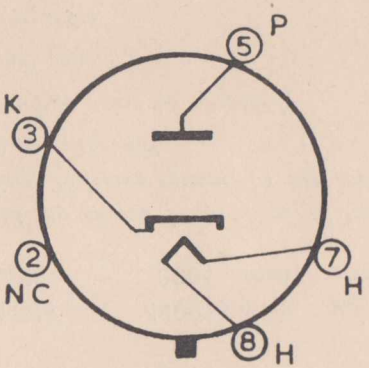
The two diode plates are placed around a cathode, the sleeve of which is common to the triode unit. Each diode plate has its own base pin. Diode biasing of the triode unit is not recommended.

TELEVISION SERIES

AWV



6AX4GT



(bottom view)

SOCKET CONNECTIONS

Pin 2—No connection (do not use)
Pin 5—Plate
Pin 7—Heater
Pin 8—Heater
Pin 3—Cathode

HALF-WAVE VACUUM RECTIFIER. The Radiotron 6AX4GT is a single indirectly-heated diode designed primarily for use as a damper valve in horizontal deflection circuits of television receivers.

This valve has been designed with internal insulation to withstand negative pulses between heater and cathode of as much as 4,400 volts with a direct component of up to 900 volts, and allows good flexibility in the choice of deflection circuits

RADIOTRON 6AX4GT

6AX4GT HALF-WAVE VACUUM RECTIFIER

ELECTRICAL DATA

Heater Voltage	6.3	volts
Heater Current	1.2	amps

DAMPER SERVICE

For operation in a 625-line, 25-frame system

Maximum Ratings:

Peak Inverse Plate Voltage† (Absolute Maximum)	4400*	max.	volts
Peak Plate Current	750	max.	mA
D.C. Plate Current	125	max.	mA
Plate Dissipation	4.8	max.	watts
Peak Heater-Cathode Voltage:			
Heater negative with respect to cathode	4400*‡	max.	volts
Heater positive with respect to cathode	300§	max.	volts

† *The duration of the voltage pulse must not exceed 15 per cent. of one horizontal scanning cycle. In a 625-line, 25-frame system, 15 per cent. of one horizontal scanning cycle is 10 microseconds.*

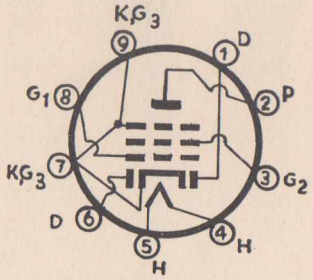
* *Under no circumstances should this absolute value be exceeded.*

‡ *The d.c. component must not exceed 900 volts.*

§ *The d.c. component must not exceed 100 volts.*

TELEVISION SERIES

6BV7



6BV7

(bottom view)

SOCKET CONNECTIONS

Pin 1—Diode Plate
Pin 2—Pentode Plate
Pin 3—Grid-No. 2
Pin 4—Heater
Pin 5—Heater
Pin 6—Diode Plate
Pin 7—Cathode, Grid-No. 3
Pin 8—Grid-No. 1
Pin 9—Cathode, Grid-No. 3

The Radiotron type 6BV7 is a 9-pin miniature duo-diode output pentode with a transconductance of 10,000 micromhos and a power output of 4 watts for 10% total harmonic distortion under the recommended 250 volt operating conditions. The valve was designed primarily for use in low cost four valve receivers in which good performance is required with reduced plate and screen voltages and low cathode current. In this application with plate, screen and control grid voltages of 180, 180 and —4 volts respectively, Radiotron 6BV7 will deliver 2 watts output for 10% distortion with a plate current of only 20mA.

6BV7

DIODES.

The location of the diodes in the output valve allows a very convenient layout of the conventional 4 valve straight or reflexed receiver and enables higher i-f gain to be obtained without excessive regeneration, or without neutralizing, than is possible when the diodes are located in the i-f amplifier valve.

In receivers with an a-f amplifier between the detector diode and the grid of the pentode section it is recommended that the diode connected to pin 6 be used for detection as this diode has the lower capacitance to pentode plate. In other types of receivers either diode may be used for detection.

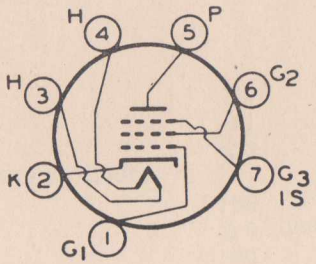
GENERAL DATA

Electrical:			
Heater Voltage		6.3	volts
Heater Current		0.8	amp.
A-F POWER AMPLIFIER — CLASS A_1			
Maximum Ratings:			
Plate Voltage		250	volts
Grid-No. 2 Voltage		250	volts
Plate Dissipation		10	watts
Grid-No. 2 Dissipation		2	watts
Peak Heater-Cathode Voltage:			
Heater negative with respect to cathode		90	volts
Heater positive with respect to cathode		90	volts
Typical Operation and Characteristics:			
Plate Voltage	180	250	volts
Grid-No. 2 (Screen) Voltage	180	250	volts
Grid-No. 1 (Control-Grid) Voltage	—4	—5	volts
Peak A-F Grid-No. 1 Voltage	4	5	volts
Zero-Sig. Plate Current	20	38	mA
Zero-Sig. Grid-No. 2 Current	3.5	6.0	mA
Plate Resistance (approx.)	130000	100000	ohms
Transconductance	8000	10000	μmhos
Load Resistance	7000	7000	ohms
Max.-Sig. Total Harmonic Distortion	10	10	%
Max.-Sig. Power Output	2	4	watts
Maximum Circuit Values:			
Grid-No. 1 Circuit Resistance:			
For Fixed Bias		0.1	megohm
For Cathode Bias		0.5	megohm
DIODE UNITS			
Maximum Rating:			
Plate Current (for each Diode)		1.0 max.	mA

TELEVISION SERIES

AWV

6BZ6



(bottom view)

SOCKET CONNECTIONS

Pin 1—Grid-No. 1
Pin 2—Cathode
Pin 3—Heater
Pin 4—Heater
Pin 5—Plate
Pin 6—Grid-No. 2
Pin 7—Grid-No. 3, Internal Shield.

Radiotron 6BZ6 is a semiremote-cutoff pentode of the 7-pin miniature type intended for use particularly in the gain-controlled picture i-f stages of television receivers.

This valve features a semiremote-cutoff characteristic to minimize cross-modulation effects in the picture i-f stages, and minimize distortion resulting from high signal levels and a.g.c. time delay. In addition, this valve has a high value of transconductance which contributes to high gain per stage.

The 6BZ6 is provided with separate base pins for grid No. 3 and cathode. This arrangement facilitates the use of an unbypassed cathode resistor to minimize changes in input loading and input capacitances with bias without causing oscillation which might otherwise occur if grid No. 3 were internally connected to the cathode.

RADIOTRON 6BZ6

6BZ6 SEMIREMOTE-CUTOFF PENTODE

GENERAL DATA

Heater Voltage	6.3	volts
Heater Current	0.3	amp.

AMPLIFIER — CLASS A_1

Maximum Ratings:

Plate Voltage	300	volts
Grid-No. 3 (Suppressor Voltage)	0	volts
Grid-No. 2 Supply Voltage	300	volts
Grid-No. 1 (Control-Grid) Voltage:		
Positive bias value	0	volts
Plate Dissipation	2.5	watts
Peak Heater-Cathode Voltage:		
Heater negative with respect to cathode	200	volts
Heater positive with respect to cathode	200△	volts

Typical Operation and Characteristics:

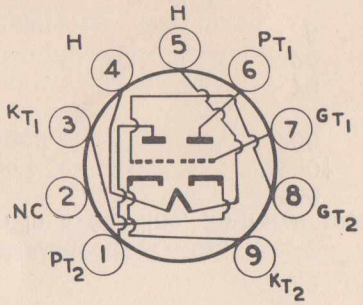
Plate Voltage	200	volts
Grid-No. 3	Connected to cathode at socket	
Grid-No. 2 Voltage	150	volts
Cathode-Bias Resistor	180	ohms
Plate Resistance (approx.)	0.6	megohm
Transconductance	6100	μmhos
Grid-No. 1 Voltage (approx.) for transconductance of 50 μmhos	—23	volts
Plate Current	11	mA
Grid-No. 2 Current	2.6	mA

Maximum Circuit Values:

Grid-No. 1 Circuit Resistance:		
For Fixed-Bias Operation	0.25	megohm
For Cathode-Bias Operation	1.0	megohm

△ The d.c. component must not exceed 100 volts.

TELEVISION SERIES



(bottom view)

SOCKET CONNECTIONS

Pin 1—Plate of Unit No. 2
Pin 2—No connection
Pin 3—Cathode of Unit No. 1
Pin 4—Heater
Pin 5—Heater
Pin 6—Plate of Unit No. 1
Pin 7—Grid of Unit No. 1
Pin 8—Grid of Unit No. 2
Pin 9—Cathode of Unit No. 2

6CM7

Radiotron 6CM7 is a medium-mu dual triode of the 9-pin miniature type containing two dissimilar triodes in one envelope. It is intended especially for use as a vertical deflection oscillator and vertical deflection amplifier in television receivers.

Unit No. 1 is designed for use as a conventional blocking oscillator in vertical deflection circuits. It has a maximum d.c. plate voltage current rating of 20 milliamperes, and a maximum plate dissipation rating of 1.25 watts.

Unit No. 2 of the 6CM7 is a high-perveance triode designed especially for use as vertical deflection amplifier. These features enable unit No. 2, in suitable circuits, to fully deflect picture tubes having deflection angles up to 90 degrees and operating at ultor voltages up to 20,000 volts.

RADIOTRON 6CM7

6CM7 MEDIUM-MU DUAL TRIODE

ELECTRICAL DATA (tentative)

Heater Voltage	6.3	volts
Heater Current	0.6	amp

Characteristics, Class A_1 Amplifier:

	Unit No. 1	Unit No. 2	
Plate Voltage	200	250	volts
Grid Voltage	−7	−8	volts
Amplification Factor	20	18	
Plate Resistance (approx.)	11000	4100	ohms
Transconductance	2000	4400	μmhos
Plate Current	5	20	mA
Plate Current for Grid Voltage of −10 volts	1	—	mA
Grid Voltage (approx.) for Plate Current of 10 μA	14	—	volts

VERTICAL DEFLECTION OCILLATOR — Unit No. 1

Maximum Ratings, for operation in a 625-line, 25-frame system:

D.C. Plate Voltage	500	volts
Peak Negative-Pulse Grid Voltage ‡	200	volts
Cathode Current:		
Peak	70	mA
Average	15	mA
Plate Dissip ation	1.25	watts
Plate Dissipation		
Heater negative with respect to cathode	200	volts
Heater positive with respect to cathode	200*	volts
Grid-Circuit Resistance	2.2	megohms

VERTICAL DEFLECTION AMPLIFIER — Unit No. 2

Maximum Ratings, for operation in a 625-line, 25-frame system:

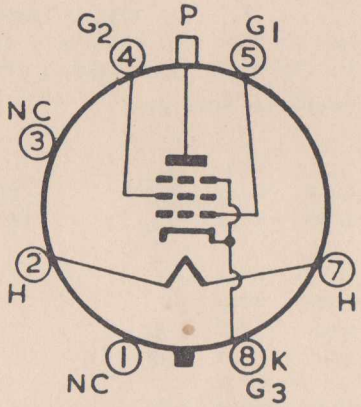
D.C. Plate Voltage	500	volts
Peak Positive-Pulse Plate Voltage ‡	2200†	volts
Peak Negative-Pulse Grid Voltage ‡	200	volts
Cathode Current:		
Peak	70	mA
Average	20	mA
Plate Dissipation	5	watts
Peak Heater-Cathode Voltage:		
Heater negative with respect to cathode	200	volts
Heater positive with respect to cathode	200*	volts
Grid-Circuit Resistance:		
For cathode-bias operation	2.5	megohms
For fixed-bias operation	1.0	megohms

‡ *This rating is applicable where the duration of the voltage pulse does not exceed 15 per cent. of one vertical scanning cycle. In a 625-line, 25-frame system, 15 per cent. of one vertical scanning cycle is 2.5 milliseconds.*

* *The d.c. component must not exceed 100 volts.*

† *Under no circumstances should this absolute value be exceeded.*

TELEVISION SERIES



(bottom view)

SOCKET CONNECTIONS

Pin 1—No Connection
Pin 2—Heater
Pin 3—No Connection
Pin 4—Grid No. 2
Pin 5—Grid No. 1
Pin 7—Heater
Pin 8—Cathode, Grid No. 3
Cap. —Plate

6BQ6GTB/6CU6

BEAM POWER VALVE. The Radiotron 6BQ6GTB/6CU6 is a beam-power valve designed for use as a horizontal deflection amplifier in television receivers.

This valve has a maximum peak positive-pulse plate voltage rating of 6000 volts (absolute), a maximum peak negative-pulse plate voltage rating of 1250 volts, and a maximum direct plate voltage rating of 600 volts. These ratings, in addition to a plate dissipation of 11 watts and a grid No. 2 input of 2.5 watts, enable a single valve in a suitable circuit to deflect picture tubes having diagonal deflection angles of 90°.

RADIOTRON 6BQ6GTB/6CU6

6BQ6GTB/6CU6 BEAM POWER PENTODE

ELECTRICAL DATA (tentative)

Heater Voltage	6.3	volts
Heater Current	1.2	amps
Class A_1 Amplifier△		
Transconductance	6000	μmhos
Plate Resistance (approx.)	18000	ohms
Plate Current	65	mA
Grid No. 2 Current	2.1	mA

(△ with Plate Volts 250
Grid No. 2 Volts 150
Grid No. 1 Volts ..... −22.5)

HORIZONTAL DEFLECTION AMPLIFIER

For operation in a 625-line, 25-frame system.

Maximum Ratings:			
Direct Plate Voltage	600	max.	volts
Peak Positive-Pulse Plate Voltage† (absolute max.)	6000§	max.	volts
Peak Negative-Pulse Plate Voltage	1250	max.	volts
Direct Grid No. 2 (screen) Voltage	200	max.	volts
Peak Negative-Pulse Grid No. 1 Voltage	300	max.	volts
Cathode Current:			
Peak	400	max.	mA
Average	112.5	max.	mA
Grid No. 2 Input	2.5	max.	watts
Plate Dissipation‡	11	max.	watts
Peak Heater-Cathode Voltage:			
Heater negative with respect to cathode	200	max.	volts
Heater positive with respect to cathode	200*	max.	volts
Bulb Temperature (at hottest point)	220	max.	°C

Maximum Circuit Value:

Grid No. 1 Circuit Resistance ..... 0.47 max. megohm

† The duration of the voltage must not exceed 15 per cent. of one horizontal scanning cycle. In a 625-line, 25-frame system, 15 per cent. of one horizontal scanning cycle is 10 microseconds approx.

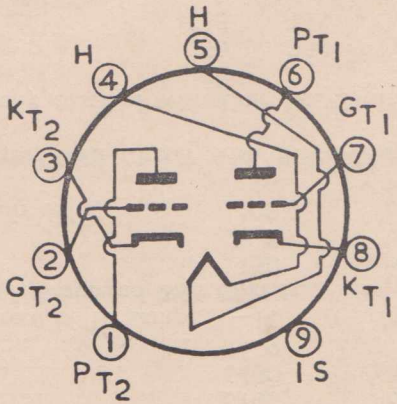
§ Under no circumstances should this absolute value be exceeded.

‡ An adequate bias resistor or other means is required to protect the tube in the absence of excitation.

** The d.c. component must not exceed 100 volts.*

TELEVISION SERIES

6BQ7A



(bottom view)

SOCKET CONNECTIONS

Pin 1—Plate of Unit No. 2.
Pin 2—Grid of Unit No. 2.
Pin 3—Cathode of Unit No. 2.
Pin 4—Heater
Pin 5—Heater
Pin 6—Plate of Unit No. 1
Pin 7—Grid of Unit No. 1
Pin 8—Cathode of Unit No. 1
Pin 9—Internal Shield

MEDIUM-MU TWIN TRIODE. Radiotron 6BQ7A is a medium-mu twin triode of the 9-pin miniature type. This tube has high transconductance, low input capacitance, low input loading and low plate-to-cathode capacitance. These features make the 6BQ7A especially useful in the direct-coupled r-f stage of television receivers utilising a driven r-f grounded-grid (cascode) amplifier circuit. Use of the 6BQ7A in such circuits provides a reduction in noise with resultant improved receiver sensitivity.

6BQ7A MEDIUM-MU TWIN TRIODE

ELECTRICAL DATA (tentative)

Heater Voltage	6.3	volts
Heater Current	0.4	amp

AMPLIFIER — CLASS A
(Values are for Each Unit)

Maximum Ratings:

Plate Voltage	250*	max.	volts
Plate Dissipation	2	max.	watts
Cathode Current	20	max.	mA
Peak Heater-Cathode Voltage			
Heater negative with respect to cathode	200*	max.	volts
Heater positive with respect to cathode	200	max.	volts

* *Under cutoff conditions, in r-f grounded-grid circuits with direct-coupled drive, it is permissible for this voltage to be as high as 300 volts.*

Characteristics:

Plate Voltage	150	volts
Cathode-Bias Resistor	220	ohms
Amplification Factor	39	
Plate Resistance	6100	ohms
Transconductance	6400	μmhos
Plate Current	9	mA
Grid Volts (approx.) for plate current of 10 μamp	−10	volts

Typical Operation in Push-Pull R-F Grounded-Grid Circuits:

Plate Voltage	150	volts
Grid Voltage obtained from R_K	−2	volts
Cathode Resistor (common to both units)	100	ohms
Plate Current	10	mA

Typical Operation in R-F Grounded-Grid Circuit with Direct-Coupled Drive:

Unit No. 1 (driver tube) is directly coupled with Unit No. 2 (driven r-f grounded-grid amplifier tube).

Plate Supply Voltage	250	250	volts
Plate Voltage	135	115	volts
Grid Voltage	−1	—	volt
Grid Resistor	—	0.5	megohm
Plate Current	10	10	mA
Grid Current	0	0	mA
Grid Voltage (approx.) for plate current of 10 μamp	−15	—	volts
Peak Heater-Cathode Voltage:			
Heater negative with respect to cathode	1	250	volts

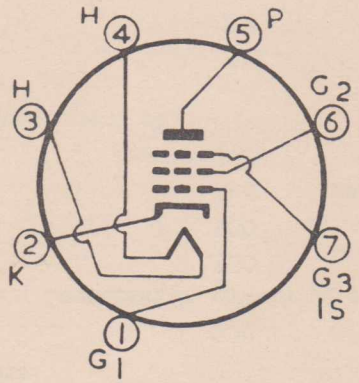
Maximum Circuit Values (Each Unit):

Grid-Circuit Resistance	0.5	max.	megohm

TELEVISION SERIES

AWV

6CB6



(bottom view)

SOCKET CONNECTIONS

Pin 1—Grid No. 1
Pin 2—Cathode
Pin 3—Heater
Pin 4—Heater
Pin 5—Plate
Pin 6—Grid No. 2
Pin 7—Grid No. 3, Internal Shield.

SHARP CUT-OFF PENTODE. The Radiotron 6CB6 is a sharp cut-off pentode of the miniature type designed for use as an intermediate-frequency amplifier at frequencies up to about 45 Mc/s. and as an r-f amplifier in the v.h.f. television tuners.

The valve features a very high transconductance (6200 μmhos) combined with low interelectrode capacitance values, and is provided with separate base pins for grid No. 3 and cathode to permit the use of an unbypassed cathode resistor to minimise the effects of regeneration.

6CB6 SHARP CUT-OFF PENTODE

ELECTRICAL DATA

Heater Volts	6.3	volts
Heater Current	0.3	amp

CLASS A_1 AMPLIFIER

Maximum Ratings:

Plate Voltage	300	max.	volts
Grid No. 2 (screen) Voltage	150		volts
Plate Dissipation	2.0	max.	watts
Grid No. 2 Input: (For Grid No. 2 voltages up to 150 volts)	0.5	max.	watt
Peak Heater-Cathode Voltage:			
Heater negative with respect to cathode	200	max.	volts
Heater positive with respect to cathode	200*	max.	volts

Typical Operation and Characteristics:

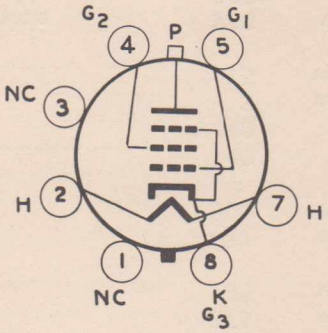
Plate Voltage	200	volts
Grid No. 3 (Suppressor)	Connected to cathode at socket	
Grid No. 2 Voltage	150	volts
Cathode-Bias Resistor	180	ohms
Plate Resistance (approx.)	0.6	megohm
Transconductance	6200	μmhos
Grid No. 1 Bias (approx.) for plate current of 10 μA	−8	volts
Plate Current	9.5	mA
Grid No. 2 Current	2.8	mA

* *The d.c. component must not exceed 100 volts.*

TELEVISION SERIES

AWV

6DQ6A



(bottom view)

SOCKET CONNECTIONS

Pin 1—No Connection
Pin 2—Heater
Pin 3—No Connection
Pin 4—Grid No. 2
Pin 5—Grid No. 1
Pin 7—Heater
Pin 8—Cathode, Grid No. 3
Cap —Plate

BEAM POWER VALVE. Radiotron 6DQ6A is a high-perveance beam power valve of the glass-octal type designed especially for use as a horizontal deflection amplifier in high efficiency deflection circuits of television receivers.

Designed with a large reserve of power capability, this valve has a maximum cathode current of 140 milliamperes, a maximum grid-No. 2 dissipation of 3 watts, a maximum grid-No. 2 voltage of 200 volts, a maximum d.c. plate voltage (including boost) of 700 volts. These features, together with a high operating ratio of plate current to grid-No. 2 current, make possible the design of an efficient horizontal-deflection circuit in which the valve can deflect fully picture tubes having deflection angles in excess of 90 degrees.

RADIOTRON 6DQ6A

6DQ6A BEAM POWER VALVE

ELECTRICAL DATA (tentative)

Heater Voltage	6.3	volts
Heater Current	1.2	amps

CLASS A_1 AMPLIFIER

Characteristics:

Plate Voltage	250	volts
Grid-No. 2 Voltage	150	volts
Grid-No. 1 Voltage	−22.5	volts
Plate Resistance (approx.)	20000	ohms
Transconductance	6600	μmhos
Plate Current	75	mA
Grid-No. 2 Current	2.4	mA
Grid-No. 1 Voltage (approx.) for plate current of 1 mA	−46	volts

HORIZONTAL DEFLECTION AMPLIFIER

Maximum Ratings:

For operation in a 625-line, 25-frame system.

Plate Voltage:		
D.C. (including boost)	700	volts
Peak Positive-Pulse §	6000*	volts
Peak Negative-Pulse §	1375	volts
D.C. Grid-No. 2 (Screen) Voltage	200	volts
Grid-No. 1 (Control-Grid) Voltage:		
D.C.	−50	volts
Peak Negative-Pulse	300	volts
Cathode Current:		
D.C.	140	mA
Peak	440	mA
Grid-No. 2 Input	3	watts
Plate Dissipation †	15	watts
Peak Heater-Cathode Voltage:		
Heater negative with respect to cathode	200	volts
Heater positive with respect to cathode	200‡	volts

Maximum Circuit Value:

For Grid Resistor-Bias Operation ..... 1.0 megohm

§ *This rating is applicable where the duration of the voltage pulse does not exceed 15 per cent. of one horizontal scanning cycle. In a 625-line, 25-frame system, 15 per cent. of one horizontal scanning cycle is 10 microseconds.*

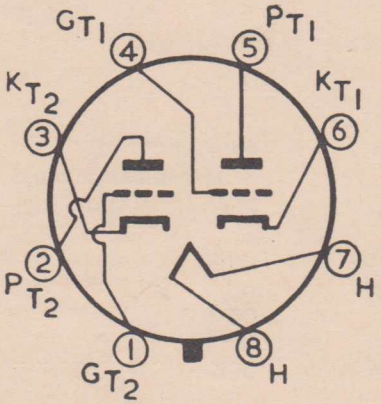
* *Under no circumstances should this absolute value be exceeded.*

† *It is essential that the plate dissipation be limited in the event of loss of grid signal. For this purpose, some protective means such as a cathode resistor of suitable value should be employed.*

‡ *The d.c. component must not exceed 100 volts.*

TELEVISION SERIES

6SN7GTA



(bottom view)

SOCKET CONNECTIONS

Pin 1—Grid of Unit No. 2
Pin 2—Plate of Unit No. 2
Pin 3—Cathode of Unit No. 2
Pin 4—Grid of Unit No. 1
Pin 5—Plate of Unit No. 1
Pin 6—Cathode of Unit No. 1
Pin 7—Heater
Pin 8—Heater

MEDIUM-MU TWIN TRIODE. Radiotron 6SN7GTA is a glass octal based medium-mu twin triode which may be used in television receivers as the oscillator in both vertical and horizontal deflection circuits, and for general purposes such as synchronising pulse separation and limiting.

6SN7GTA MEDIUM-MU TWIN TRIODE

ELECTRICAL DATA (tentative)

Heater Voltage	6.3	volts
Heater Current	0.6	amp

CLASS A_1 AMPLIFIER

Values are for each unit.

Maximum Ratings:

Plate Voltage	450	max.	volts
Cathode Current	20	max.	mA
Plate Dissipation:			
For either plate	5	max.	watts
For both plates with both units operating	7.5	max.	watts
Peak Heater-Cathode Voltage:			
Heater negative with respect to cathode	200	max.	volts
Heater positive with respect to cathode	200*	max.	volts

Characteristics:

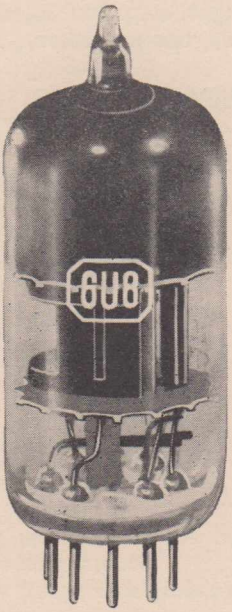
Plate Voltage	250	volts
Grid Voltage	−8	volts
Amplification Factor	20	
Plate Resistance	7700	ohms
Transconductance	2600	μmhos
Plate Current	9	mA
Plate Current for grid voltage of −12.5 volts	1.3	mA
Grid Bias Voltage (approx.) for plate current of 10 μA	−18	volts

Maximum Circuit Value:

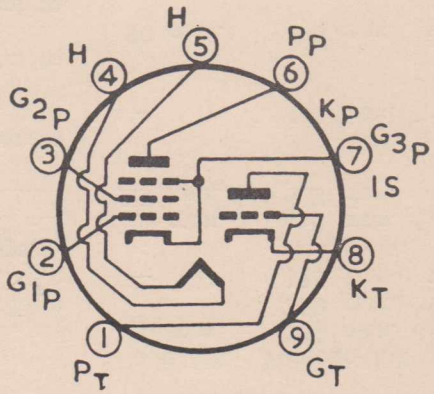
Grid-Circuit Resistance:			
For Fixed-Bias operation	1.0	max.	megohm

* *The d.c. component must not exceed 100 volts.*

TELEVISION SERIES



6U8



(bottom view)

SOCKET CONNECTIONS

Pin 1—Triode Plate
Pin 2—Pentode Grid No. 1
Pin 3—Pentode Grid No. 2
Pin 4—Heater
Pin 5—Heater
Pin 6—Pentode Plate
Pin 7—Pentode Cathode, Pentode Grid No. 3, Internal Shield.
Pin 8—Triode Cathode
Pin 9—Triode Grid.

MEDIUM-MU TRIODE, SHARP CUT-OFF PENTODE. The Radiotron 6U8 is a 9-pin miniature valve containing a medium-mu triode and a sharp cut-off pentode in one envelope. It is designed primarily for use as a combined oscillator and mixer valve in F.M. and television receivers using intermediate frequencies up to 40 Mc/s.

The pentode mixer unit of the 6U8 provides low grid No. 1 to plate capacitance as compared with a triode mixer and also has a low output capacitance. The low value of capacitance between grid No. 1 and plate minimises feedback problems often encountered in mixer circuits operating with intermediate frequencies between 30 and 40 Mc/s.

6U8 MEDIUM-MU TRIODE, SHARP CUT-OFF PENTODE

ELECTRICAL DATA (tentative)

Heater Voltage	6.3	volts
Heater Current	0.45	amp

Characteristics:

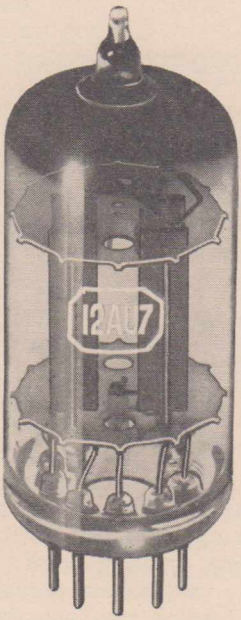
	Triode Unit	Pentode Unit	
Plate Voltage	150	250	volts
Grid No. 2 Voltage	—	110	volts
Cathode-Bias Resistor	56	68	ohms
Amplification Factor	40	—	
Plate Resistance (approx.)	5000	400000	ohms
Transconductance	8500	5200	μmhos
Grid No. 1 Bias for plate current of 10 μA	−12	−10	volts
Plate Current	18	10	mA
Grid No. 2 Current	—	3.5	mA

CONVERTER SERVICE

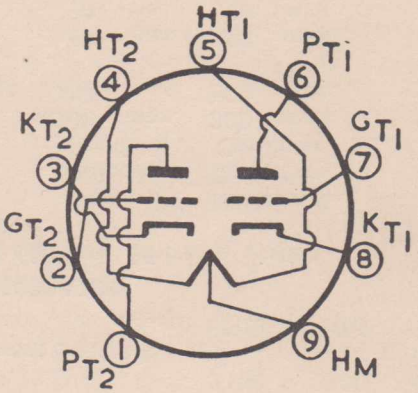
Maximum Ratings:

	Triode Unit	Pentode Unit	
Plate Voltage	300 max.	300 max.	volts
Grid No. 2 (Screen) Supply Voltage	—	300 max.	volts
Grid No. 2 Voltage	—	125	volts
Grid No. 1 (Control-Grid) Voltage: Positive bias value	0 max.	0 max.	volts
Plate Dissipation	2.7 max.	2.8 max.	watts
Grid No. 2 Input: For Grid No. 2 voltages up to 150 volts	—	0.5 max.	watt
Peak Heater-Cathode Voltage: Heater negative with respect to cathode	90 max.	90 max.	volts
Heater positive with respect to cathode	90 max.	90 max.	volts

TELEVISION SERIES



12AU7



(bottom view)

SOCKET CONNECTIONS

Pin 1—Plate of Unit No. 2
Pin 2—Grid of Unit No. 2
Pin 3—Cathode of Unit No. 2
Pin 4—Heater
Pin 5—Heater
Pin 6—Plate of Unit No. 1
Pin 7—Grid of Unit No. 1
Pin 8—Cathode of Unit No. 1
Pin 9—Heater Centre-tap.

MEDIUM-MU TWIN TRIODE. The Radiotron 12AU7 is a miniature 9-pin valve containing two similar medium-mu triodes in one envelope.

Either of the triodes may be used in a television receiver as a vertical or horizontal deflection oscillator or as a synchronising pulse separator and amplifier.

RADIOTRON 12AU7

12AU7 MEDIUM-MU TWIN TRIODE

ELECTRICAL DATA

	Series	Parallel	
Heater Arrangement			
Heater Voltage	12.6	6.3	volts
Heater Current	0.15	0.3	amp

CLASS A_1 AMPLIFIER (each unit)

Maximum Ratings:

Plate Voltage	300	max.	volts
Plate Dissipation	2.75	max.	watts
Cathode Current	20	max.	mA
Grid Voltage:			
Negative bias value	50	max.	volts
Positive bias value	0	max.	volts
Peak Heater-Cathode Voltage:			
Heater negative with respect to cathode	200	max.	volts
Heater positive with respect to cathode	200*	max.	volts

Characteristics:

Plate Voltage	100	250	volts
Grid Voltage	0	−8.5	volts
Amplification Factor	20	17	
Plate Resistance (approx.)	6500	7700	ohms
Transconductance	3100	2200	μmhos
Grid Bias (approx.) for plate current of 10 μA	—	−24	volts
Plate Current	11.8	10.5	mA

OSCILLATOR

for operation in a 625-line, 25-frame system

Maximum Ratings (Each Unit):

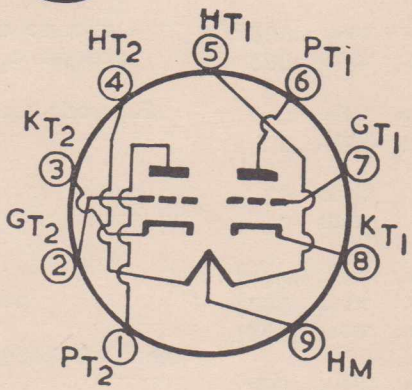
	Vertical Deflection Oscillator		Horizontal Deflection Oscillator		
D.C. Plate Voltage	300	max.	300	max.	volts
Peak Negative-Pulse Grid Voltage	400	max.	600	max.	volts
Cathode Current:					
Peak	60	max.	300	max.	mA
Average	20	max.	20	max.	mA
Plate Dissipation	2.75	max.	2.75	max.	watts
Peak Heater Cathode Voltage:					
Heater negative with respect to cathode	200	max.	200	max.	volts
Heater positive with respect to cathode	200*	max.	200*	max.	volts
Maximum Circuit Value:					
Grid-Circuit Resistance	2.2	max.	2.2	max.	megohms

* *The d.c. component must not exceed 100 volts.*

TELEVISION SERIES

AWV

12BH7



(bottom view)

SOCKET CONNECTIONS

Pin 1—Plate of Unit No. 2
Pin 2—Grid of Unit No. 2
Pin 3—Cathode of Unit No. 2
Pin 4—Heater
Pin 5—Heater
Pin 6—Plate of Unit No. 1
Pin 7—Grid of Unit No. 1
Pin 8—Cathode of Unit No. 1
Pin 9—Heater Centre-tap.

MEDIUM-MU TWIN TRIODE. The Radiotron 12BH7 is a medium-mu twin triode of the 9-pin miniature type used in the vertical deflection circuits of television receivers. In such circuits, one unit of the 12BH7 may be used as the vertical deflection amplifier and the other as the vertical oscillator. This valve is adequate for picture tubes with up to ninety degree deflection angle, when operated from the boost supply voltage.

The 12BH7 features two similar triode units in one envelope, separate base-pin terminals for each cathode and a centre-tapped heater to permit operation from either a 6.3 volt or 12.6 volt supply

The valve may be used in other applications including phase-inverter and multivibrator circuits.

RADIOTRON 12BH7

ELECTRICAL DATA (tentative)

Heater Arrangement	Series	Parallel	
Heater Voltage	12.6	6.3	volts
Heater Current	0.3	0.6	amp

CLASS A_1 AMPLIFIER (Each Unit)

Maximum Ratings:			
Plate Voltage	300	max.	volts
Grid Voltage:			
Negative Bias Value	50	max.	volts
Positive Bias Value	0	max.	volts
Cathode Current	20	max.	mA
Plate Dissipation	3.5	max.	watts
Peak Heater-Cathode Voltage:			
Heater negative with respect to cathode	200	max.	volts
Heater positive with respect to cathode	200*	max.	volts
Characteristics:			
Plate Voltage	250		volts
Grid Voltage	−10.5		volts
Amplification Factor	16.5		
Plate Resistance (approx.)	5300		ohms
Transconductance	3100		μmhos
Plate Current	11.5		mA
Grid Voltage (approx.) for plate current of 10 μA	−23		volts

VERTICAL DEFLECTION AMPLIFIER

Maximum Ratings (Each Unit):			
D.C. Plate Voltage	450	max.	volts
Peak Positive-Pulse Plate Voltage‡ (absolute maximum)	1500§	max.	volts
Peak Negative-Pulse Grid Voltage	250	max.	volts
	400△	max.	volts
Cathode Current:			
Peak	70	max.	mA
Average	20	max.	mA
Plate Dissipation:			
For either plate	3.5	max.	watts
For both plates with both units operating	7.0	max.	watts
Peak Heater-Cathode Voltage:			
Peak negative with respect to cathode	200	max.	volts
Peak positive with respect to cathode	200*	max.	volts
Maximum Circuit Value:			
Grid-Circuit Resistance:			
For cathode-bias operation	2.2	max.	megohms

‡ *The duration of the voltage pulse must not exceed 15 per cent. of one vertical scanning cycle. In a 625-line, 25-frame system, 15 per cent. of one vertical scanning cycle is 3 milliseconds.*

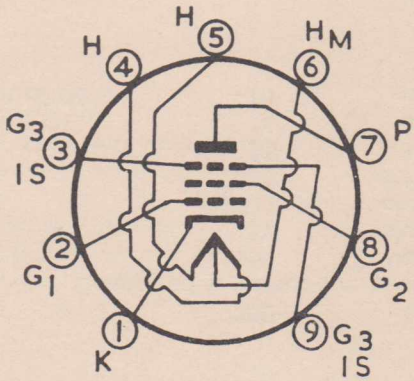
§ *Under no circumstances should this absolute value be exceeded.*

* *The d.c. component must not exceed 100 volts.*

△ *As vertical deflection oscillator.*

TELEVISION SERIES

12BY7



(bottom view)

SOCKET CONNECTIONS

Pin 1—Cathode
Pin 2—Grid No. 1
Pin 3—Grid No. 3, Internal Shield
Pin 4—Heater
Pin 5—Heater
Pin 6—Heater Centre-Tap
Pin 7—Plate
Pin 8—Grid No. 2
Pin 9—Grid No. 3, Internal Shield

SHARP CUT-OFF PENTODE. The Radiotron 12BY7 is a high transconductance pentode designed for use as a wide band video amplifier where the plate supply voltage is low and large output voltages are required with low values of plate load resistors. Such an application is the video output stage of a television receiver.

The valve has a 9-pin miniature base and has a centre-tapped heater to permit operation from either a 6.3 volt or 12.6 volt supply.

12BY7 VIDEO AMPLIFIER PENTODE

ELECTRICAL DATA (tentative)

	Series	Parallel	
Heater Arrangement			
Heater Voltage	12.6	6.3	volts
Heater Current	0.3	0.6	amp

CLASS A_1 AMPLIFIER

Maximum Ratings:

Plate Supply Voltage	300	max.	volts
Grid No. 3 (Suppressor) Voltage	0	max.	volts
Grid No. 2 (Screen) Voltage	175	max.	volts
Grid No. 1 (Control-Grid) Voltage:			
Negative Bias Value	50	max.	volts
Positive Bias Value	0	max.	volts
Grid No. 2 Input	1	max.	watt
Plate Dissipation	6.25	max.	watts
Peak-Heater Cathode Voltage:			
Heater negative with respect to cathode	200	max.	volts
Heater positive with respect to cathode	200*	max.	volts

Characteristics:

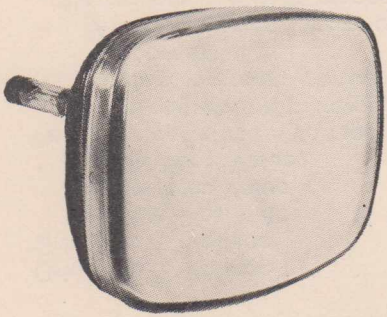
Plate Voltage	250	volts
Grid No. 3	Connected to cathode at socket	
Grid No. 2 Voltage	150	volts
Cathode-Bias Resistor	68	ohms
Plate Resistance (approx.)	90000	ohms
Transconductance	12000	μmhos
Plate Current	25	mA
Grid No. 2 Current	6	mA
Grid No. 1 Bias for plate current of 20 μA	−10	volts

Maximum Circuit Value:

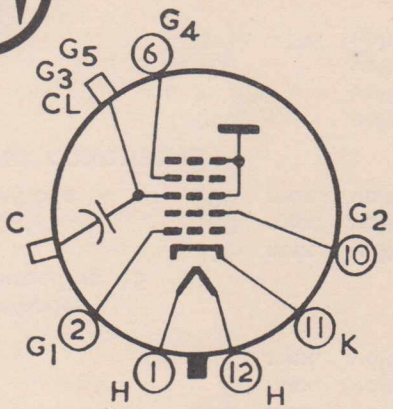
Grid No. 1 Circuit Resistance:			
For cathode-bias operation	1	max.	megohm
For fixed-bias operation	0.25	max.	megohm

* *The d.c. component must not exceed 100 volts.*

TELEVISION SERIES



17HP4B



(bottom view)

SOCKET CONNECTIONS

Pin 1—Heater
Pin 2—Grid No. 1
Pin 6—Grid No. 4 (Focus)
Pin 10—Grid No. 2
Pin 11—Cathode
Pin 12—Heater
Cap —Grid No. 3, Grid No. 5, Collector.
C —External Conductive Coating.

PICTURE TUBE. Radiotron 17HP4B is a 17 inch, 70 degree, electrostatic-focus, aluminised picture tube with filter-glass face plate, designed for E.H.T. voltages up to 16 KV. It has an external conductive bulb coating, which, with the internal conductive coating, forms the E.H.T. filter capacitor; an ion-trap gun requiring an external, single-field magnet; and a screen size of 14⅜in. x 11 1/16in. with slightly curved sides and rounded corners. The focusing electrode in the 17HP4B has its own base-pin terminal to permit designer's choice of focusing voltage for best results.

The additional brightness provided by aluminising at high E.H.T. voltages makes it possible to use a filter safety-glass in addition to the filter-glass face plate on the tube and thus to obtain blacker "blacks" in the TV picture and also to minimize a "washed out" appearance in conditions of high ambient lighting.

RADIOTRON 17HP4B

17HP4B PICTURE TUBE

ELECTRICAL DATA (tentative)

Heater Voltage	6.3	volts
Heater Current	0.6	amp
Focusing Method	Electrostatic	
Deflecting Method	Magnetic	
Deflecting Angle (approx.):		
Horizontal	65 Degrees	
Diagonal	70 Degrees	
Screen	Aluminised	
Fluorescence	White	
Persistence	Medium	
Faceplate (Spherical)	Grey Filter Glass	
Ion Trap Magnet	External Single Field	
Minimum Useful Screen Dimensions	$10\frac{3}{4}$" x $14\frac{1}{4}$"	

Maximum Ratings:

Ultor (Grid No. 3, Grid No. 5, Collector) Voltage	16000	max.	volts
Grid No. 4 (Focusing Electrode) Voltage			
	−500 to +1000	max.	volts
Grid No. 2 Voltage	500	max.	volts
Grid No. 1 Voltage			
Negative Bias Value	125	max.	volts
Positive Bias Value	0	max.	volts
Positive Peak Value	2	max.	volts
Peak Heater-Cathode Voltage:			
Heater negative with respect to cathode:			
During warm-up period not exceeding 15 seconds	410	max.	volts
After equipment warm-up period	180	max.	volts
Heater positive with respect to cathode	180	max.	volts

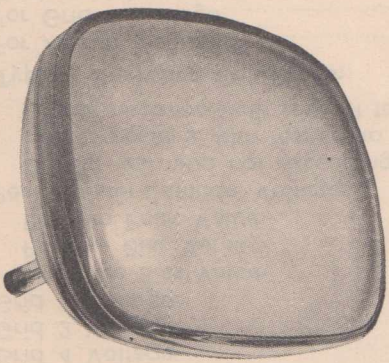
TYPICAL OPERATING CONDITIONS

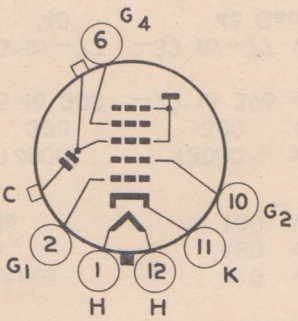
Ultor Voltage[1]	14000	volts
Grid No. 4 Voltage[2]	0 to 350	volts
Grid No. 2 Voltage	300	volts
Grid No. 1 Voltage for Cut-off[3]	−33 to −77	volts

Notes:

1. *For Anode Current of 100 μA.*
2. *For best centre focus with ultor current of 100 μA on a blank raster.*
3. *Visual extinction of focused raster.*

TELEVISION SERIES





(bottom view)

SOCKET CONNECTIONS

Pin 1—Heater
Pin 2—Grid No. 1
Pin 6—Grid No. 4
Pin 10—Grid No. 2
Pin 11—Cathode
Pin 12—Heater
Cap —Ultor
C —External Conductive Coating.

21ALP4A

PICTURE TUBE. This is a 21 inch, 90 degree electrostatic picture tube of rectangular glass construction. The 90 degree bulb enables the receiver engineer to design a more compact cabinet and chassis as a consequence of the shorter overall length. The face plate is spherical and is made of neutral gray glass which minimizes internal reflections and improves picture contrast. The 21ALP4A has an external conductive coating, and aluminized screen for increased picture brightness. The electrostatic-focus gun has improved focus quality, better focus over a wide range of operating voltages, and its performance is less affected by changes in anode voltage, brightness, and screen voltage.

21ALP4A PICTURE TUBE

ELECTRICAL DATA

Heater Voltage	6.3	volts
Heater Current	0.6	amp
Screen:		
Phosphorescence	White	
Persistence	Short	
Focusing Method	Low-Voltage Electrostatic	
Deflection Method	Magnetic	
Horizontal Angle	80°	
Vertical Angle	68°	
Diagonal Angle	90°	
Ion Trap Magnet	External Single-Field Magnet	
Face Plate (Spherical)	Neutral Filter Glass	

Maximum Ratings:

Anode Grid 3 and 5 Voltages*	18000	volts
Grid 4 Voltage	−500 to +1000	volts
Grid 2 Voltage	500	volts
Grid 1 Voltage:		
Negative Bias Value	125	volts
Positive Bias Value	0	volts
Positive Peak Value	2	volts
Peak Heater-Cathode Voltages:		
During warm-up not exceeding 15 seconds	410	volts
Heater positive with respect to cathode	180	volts
Heater negative with respect to cathode	180	volts

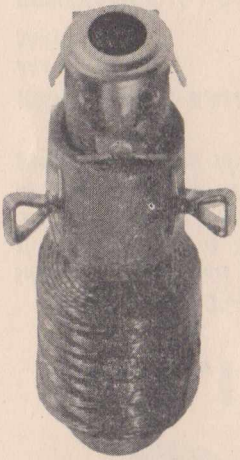
Typical Operating Conditions:

For Anode Voltages*	14000	18000	volts
For Grid 2 Voltage	300	300	volts
Grid 4 Voltage†	−55 to 300	−72 to 396	volts
Grid 1 Voltage for visual extinction of undeflected focusing spot	−33 to −77	−33 to −77	volts
Ion-Trap Magnet (Rated Strength)	40	46	Gausses

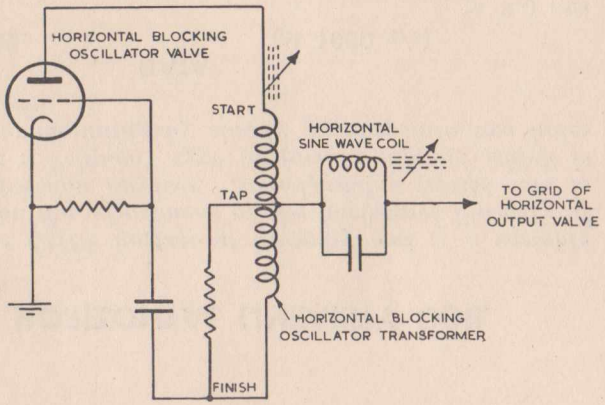
** Brilliance and definition decrease with decreasing anode voltage. In general, anode voltage should not be less than 14000 volts.*

† For best centre focus with Anode Current of 100 μA.

TELEVISION SERIES



SIMPLIFIED SCHEMATIC



CHS1 HORIZONTAL SINE WAVE COIL

The Radiotron Type CHS1 horizontal sine wave coil is designed for use with a horizontal blocking oscillator transformer and when used in an appropriate circuit will greatly improve the stability of the horizontal oscillator. An adjustable ferrite core is used, together with a "clip-in" type of former support which is designed to facilitate mounting by simply pushing into two holes punched in the chassis.

DATA

INDUCTANCE RANGE: (at 1000 c/s)

Maximum ..... >11.0 mH

Minimum ..... < 6.2 mH

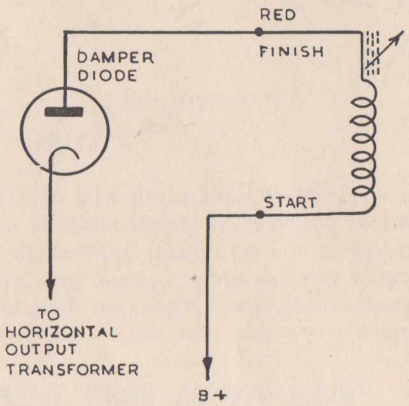
RESISTANCE: (at 25°C) ..... 55 ohms approx.

Q (at 50 kc/s with inductance adjusted to 9.3 mH) ..... 50 ± 10%

ASSOCIATED COMPONENT:

Horizontal Blocking Oscillator Transformer ..... Radiotron THB1

SIMPLIFIED SCHEMATIC



CHL1 HORIZONTAL LINEARITY COIL

Radiotron Type CHL1 horizontal linearity coil is a variable inductor designed for the adjustment of the horizontal linearity of the picture in a television receiver. An adjustable ferrite core is used, together with a "clip-on" type of former support which is designed to facilitate mounting by simply pushing into two holes punched in the chassis.

DATA

INDUCTANCE RANGE: (at 1000 c/s)

Maximum	> 8.0 mH
Minimum	< 2.0 mH

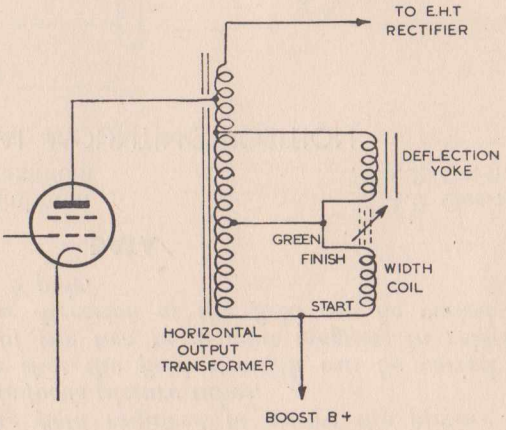
RESISTANCE: (at 25°C) ..... 17 ohms approx.

ASSOCIATED COMPONENTS:

Horizontal Output Transformer	Radiotron TH01
Deflection Yoke	Radiotron Y70D1

TELEVISION SERIES

SIMPLIFIED SCHEMATIC



CHW1 HORIZONTAL WIDTH COIL

The Radiotron Type CHW1 horizontal width coil is a variable inductor designed for the adjustment of the picture width in a television receiver. An adjustable ferrite core is used, together with a "clip-in" type of former support which is designed to facilitate mounting by simply pushing into two holes punched in the chassis.

DATA

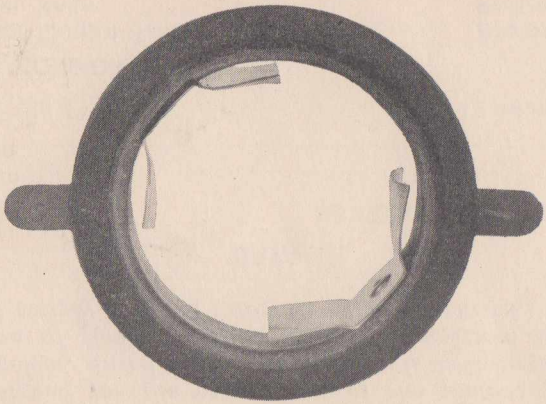
INDUCTANCE RANGE: (at 1000 c/s)

Maximum	> 16 mH
Minimum	< 3.0 mH

RESISTANCE: (25°C) ..... 12 ohms (approx.)

ASSOCIATED COMPONENTS:

Horizontal Output Transformer	Radiotron THO1
Deflection Yoke	Radiotron Y70D1



MCA1 CENTRING MAGNET ASSEMBLY

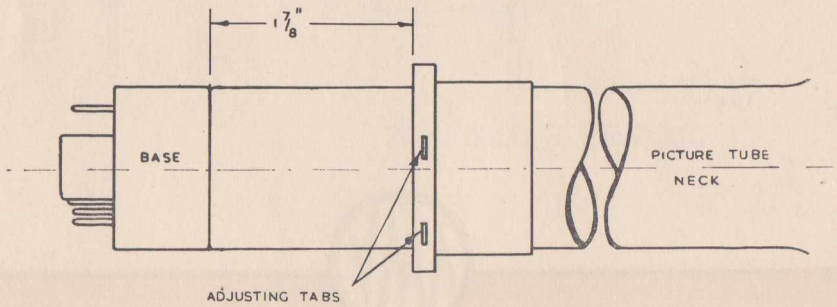
Radiotron Type MCA1 centring magnet assembly is designed to provide the magnetic field required to centre the picture on the screen of electrostatic-focus picture tubes.

The design is such that the field strength can be varied by adjusting the position of the two permanent magnets in relation to one another, and the direction of the field can be varied by rotating the magnets as a pair.

DATA

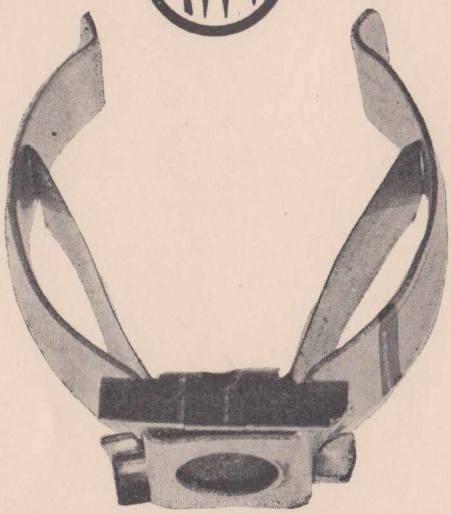
Field Strength Range:	Minimum	< 1.0 Oersted.
	Maximum	10 ± 2 Oersted.

TYPICAL MOUNTING POSITION



TELEVISION SERIES

AWV



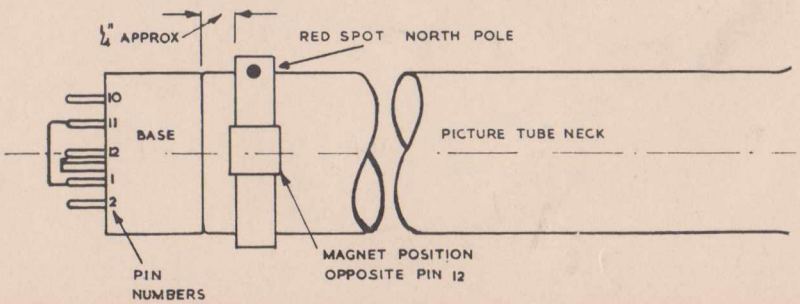
MIT1 ION TRAP MAGNET ASSEMBLY

Radiotron Type MIT1 ion trap magnet assembly is of the single field, clip-on type intended for picture tubes having nominal neck diameter of $1\frac{7}{16}$in. It is suitable for use with Radiotron picture tubes requiring the field strength specified below for the re-bending of the electron beam.

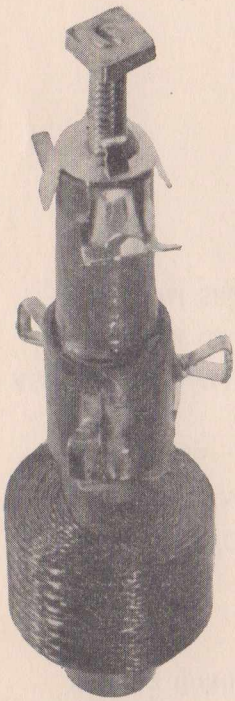
DATA

Field strength ..... 46 ± 10% Oersteds (at centre)

TYPICAL MOUNTING POSITION

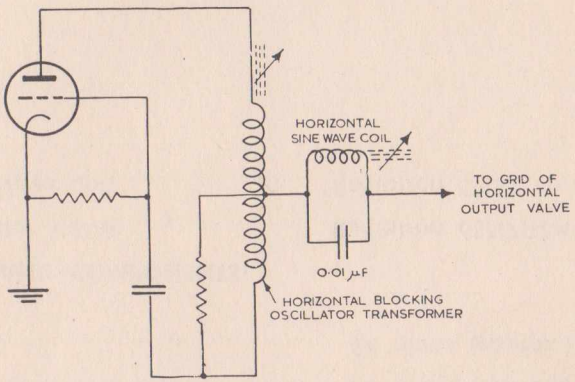


TELEVISION SERIES

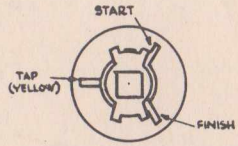


THB1

SIMPLIFIED SCHEMATIC



TERMINAL CONNECTIONS



VIEW LOOKING AT LUGS
FROM FORMER SUPPORT

HORIZONTAL BLOCKING OSCILLATOR TRANSFORMER

The Radiotron THB1 is a tapped variable inductor for use as the horizontal oscillator transformer in television receivers using a valve such as the Radiotron 6SN7GTA as a combination blocking oscillator and synchronising control.

RADIOTRON THB1

This component is fitted with an adjustable ferrite core, which, with the knob supplied, becomes the horizontal frequency or "hold" control of the receiver. The knob is provided with a recessed end to fit the square capped end of the core-adjusting screw.

DATA

INDUCTANCE RANGE: (1000 c/s)

Start to finish:	Maximum	< 75 mH
	Minimum	16.5 + 0 mH — 15%

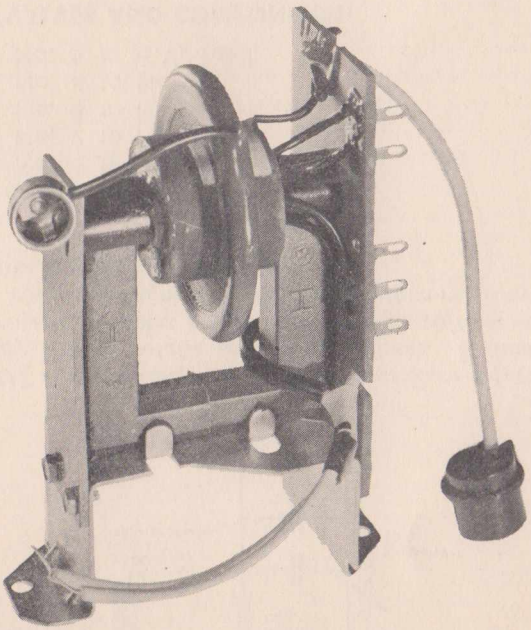
RESISTANCE: (25°C)

Start to finish	88 ohms (approx.)
Start to tap	24 ohms (approx.)

ASSOCIATED VALVE AND COMPONENTS:

Horizontal Oscillator Valve	Radiotron 6SN7GTA
Horizontal Sine Wave Coil	Radiotron CHS1

TELEVISION SERIES



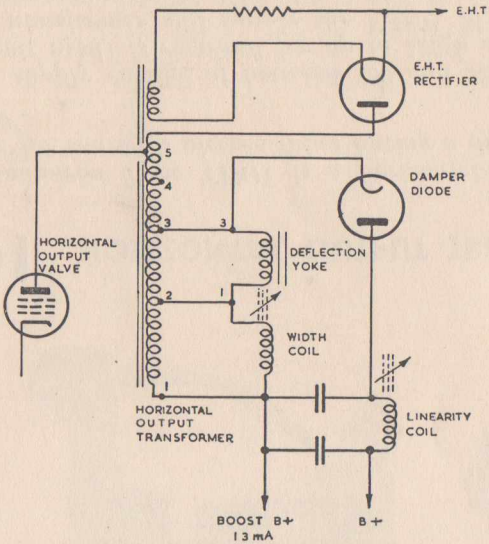
THO1 HORIZONTAL OUTPUT TRANSFORMER

The Radiotron Type THO1 is a horizontal-deflection output transformer for use with picture tubes having a diagonal deflection angle of 70°.

A "B" supply voltage of between 250 and 285 V. (depending on the circuit used) is required for up to 120% of full horizontal scan. The transformer will supply the E.H.T. of up to 16 KV at no load (approximately 14 KV with a picture tube beam current of 150 μA) and will provide good deflection linearity.

RADIOTRON TH01

SIMPLIFIED SCHEMATIC



The TH01 is an auto-transformer and utilises a ferrite core for high efficiency, light weight and compactness. It has a separate winding to provide filament power for the high voltage rectifier valve and employs coils impregnated with a moisture-resistant compound which does not support combustion.

DATA

RESISTANCE: (approx. at 25°C)

Terminal No. 1 to No. 2	2.3 ohms
Terminal No. 2 to No. 3	12.2 ohms
Terminal No. 3 to No. 4	3.2 ohms
Terminal No. 4 to No. 5	8.5 ohms
Terminal No. 5 to H.V. Lead	350 ohms

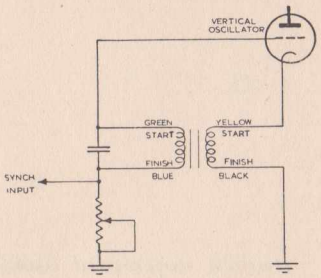
ASSOCIATED VALVES AND COMPONENTS:

High Voltage Rectifier Valve	Radiotron 1B3GT
Damper Diode Valve	Radiotron 6AX4GT
Horizontal Output Valve	Radiotron 6BQ6GTB/6CU6
Deflection Yoke	Radiotron Y70D1
Horizontal Linearity Coil	Radiotron CHL1
Horizontal Width Coil	Radiotron CHW1

TELEVISION SERIES

TVB1

SIMPLIFIED SCHEMATIC



VERTICAL BLOCKING OSCILLATOR TRANSFORMER

Radiotron Type TVB1 is a blocking oscillator transformer designed for use in television receiver vertical-oscillator circuits.

The transformer has an open construction which facilitates its use in either above-chassis or under-chassis mountings. Highest quality insulation and impregnation are used to ensure adequate protection against the ingress of moisture and to give maximum reliability.

DATA

TURNS RATIO:

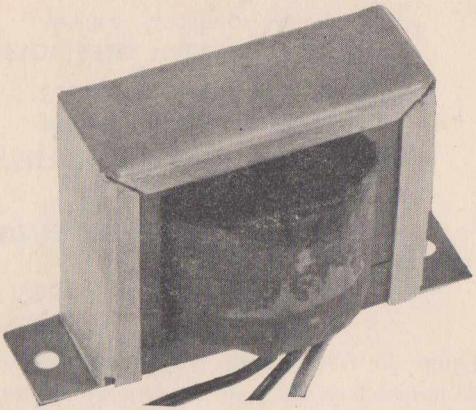
Primary to Secondary ..... 4.5 : 1

RESISTANCE: (approx. at 25°C)

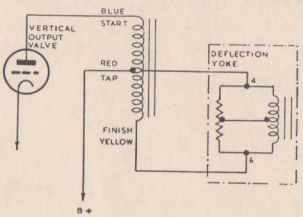
Primary (green to blue) ..... 480 ohms
Secondary (yellow to black) ..... 140 ohms

ASSOCIATED VALVE:

Vertical Oscillator Valve ..... Radiotron 6SN7GTA
or Radiotron 12BH7



SIMPLIFIED SCHEMATIC



TV01 VERTICAL OUTPUT TRANSFORMER

The Radiotron Type TV01 vertical output auto-transformer is designed for use in a television receiver utilising a triode such as the Radiotron 12BH7 for the vertical output valve.

The component uses high quality insulation and impregnation to ensure reliability of operation and adequate protection against moisture absorption.

DATA

TURNS RATIO:

(start-finish to tap-finish)
Primary to Secondary ..... 15 : 1

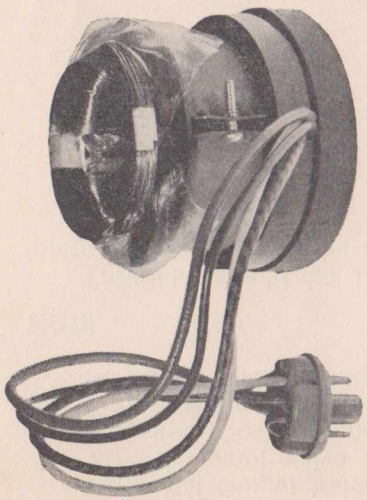
RESISTANCE: (25°C)

Primary (blue to yellow) ..... 680 ohms
Secondary (red to yellow) ..... 3 ohms

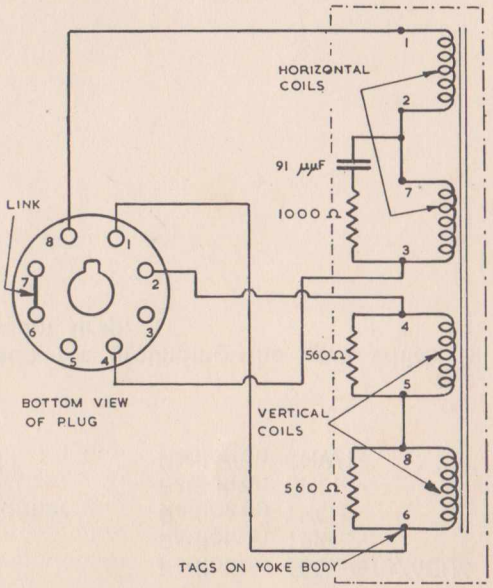
ASSOCIATED COMPONENT AND VALVE:

Deflection Yoke ..... Radiotron Y70D1
Vertical Output Valve ..... Radiotron 12BH7

TELEVISION SERIES



TERMINAL CONNECTIONS



Y70D1 70° DEFLECTION YOKE

Radiotron Type Y70D1 is a magnetic deflection yoke designed for use with directly viewed picture tubes, having a neck diameter of $1\frac{7}{16}$in. and diagonal deflection angle of 70°. High deflection sensitivity, as well as full-screen focus, is provided by the Y70D1 which utilises a ferrite core structure and distributed windings of a modified cosine design.

Damping and neutralising components are built-in and the assembly is supplied with connecting cable and octal plug.

RADIOTRON Y7ODI

CHARACTERISTICS

HORIZONTAL COILS:

Inductance at 1000 c/s	13.3 mH	(approx.)
Resistance at 25°C	23.5 ohms	(approx.)

VERTICAL COILS:

Inductance at 1000 c/s	41 mH	(approx.)
Resistance at 25°C	48.5 ohms	(approx.)

ASSOCIATED VALVES AND COMPONENTS:

Horizontal Output Valve	Radiotron 6BQ6GTB/6CU6
Vertical Output Valve	Radiotron 12BH7
Horizontal Output Transformer	Radiotron THO1
Horizontal Linearity Coil	Radiotron CHL1
Horizontal Width Control	Radiotron CHW1

NOTE.

Provision should be made for grounding the core which is internally connected to the mount strap.


AWV